

**In the Claims:**

Please cancel claims 3-6 without prejudice, amend claims 1, 2, 55 and 57, and add claims 68-81 as follows.

1. (Currently Amended). A nucleic acid molecule that comprises a coding sequence operably linked to regulatory elements, wherein said coding sequence that encodes a CD80 mutant protein that comprises at least one of 80V, 80tm and 80ct and is free of functional 80C;

wherein said CD80 mutant that is free of a functional C region by the absence of all or part of the CD80 C region, said protein comprises either 80V or 86V or both and optionally comprises one or more of 86C, 80tm, 86tm, 80ct and 86ct wherein:

80V is the variable domain of CD80 or a functional fragment thereof;

86V is the variable domain of CD86 or a functional fragment thereof;

86C is the C domain of CD86 or a functional fragment thereof;

80tm is the transmembrane region of CD80 or a functional fragment thereof;

86tm is the transmembrane region of CD86 or a functional fragment thereof;

80ct is the cytoplasmic tail of CD80 or a functional fragment thereof; and

86ct is the cytoplasmic tail of CD86 or a functional fragment thereof;

wherein said CD80 does not transmute the negative signal associated with wild-type CD80 C region interactions with CTLA4.

2. (Currently Amended). The nucleic acid molecule of claim 1 ~~wherein said coding sequence that encodes a protein that comprises either 80V or 86V or both and optionally comprises one or more of 86C, 80tm, 86tm, 80ct and 86ct~~ wherein:

80V is the variable domain of CD80;

86V is the variable domain of CD86;

86C is the C domain of CD86

80tm is the transmembrane region of CD80;

86tm is the transmembrane region of CD86;

80ct is the cytoplasmic tail of CD80; and

86ct is the cytoplasmic tail of CD86.

3-9. Cancelled

10. (Previously presented). A plasmid comprising a nucleic molecule of claim 1.

11. (Original). A plasmid of claim 10 further comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

12. (Previously presented). A composition comprising a plasmid of claim 10 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

13. (Previously presented). A recombinant vaccine or attenuated vaccine comprising composition comprising a nucleic acid molecule of claim 1.

14-15. Cancelled

16. (Previously presented). A methods immunizing an individual against an immunogen comprising administering a composition comprising nucleic acid molecules according to claim 1.

17. (Original). The method of claim 16 wherein said immunization is prophylactic.

18. (Original). The method of claim 16 wherein said immunization is therapeutic.

19. (Original). The method of claim 16 wherein said immunogen is an allergen.

20. (Original). The method of claim 16 wherein said immunogen is a pathogen antigen.

21. (Original). The method of claim 16 wherein said immunogen is an antigen associated with an autoimmune disease.

22. (Original). The method of claim 16 wherein said immunogen is an antigen associated with a hyperproliferative disease.

23-40. Cancelled

41. (Previously presented). A composition comprising a plasmid of claim 11 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

42. (Previously presented). The nucleic acid molecule of claim 1 wherein said protein comprises part of CD80 C region.

43. (Previously presented). A plasmid comprising a nucleic molecule of claim 42.

44. (Previously presented). A plasmid of claim 43 further comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

45. (Previously presented). A composition comprising a plasmid of claim 44 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

46. (Previously presented). A composition comprising a plasmid of claim 43 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

47. (Previously presented). A recombinant vaccine or attenuated vaccine comprising composition comprising a nucleic acid molecule of claim 42.

48. (Previously presented). A methods immunizing an individual against an immunogen comprising administering a composition comprising nucleic acid molecules according to claim 42.

49. (Previously presented). The method of claim 48 wherein said immunization is prophylactic.

50. (Previously presented). The method of claim 48 wherein said immunization is therapeutic.

51. (Previously presented). The method of claim 48 wherein said immunogen is an allergen.

52. (Previously presented). The method of claim 48 wherein said immunogen is a pathogen antigen.

53. (Previously presented). The method of claim 48 wherein said immunogen is an antigen associated with an autoimmune disease.

54. (Previously presented). The method of claim 48 wherein said immunogen is an antigen associated with a hyperproliferative disease.

55. (Currently Amended). The A nucleic acid molecule of claim 1 that comprises a coding sequence operably linked to regulatory elements, wherein said coding sequence encodes a CD80 mutant that comprises a functional CD80 V region, a functional CD80 tm and a functional CD80 ct region, and is free of a functional C region by the absence of all or part of the CD80 C region; wherein said CD80 does not transmute the negative signal associated with wild-type CD80 C region interactions with CTLA4.

56. (Previously presented). A plasmid comprising a nucleic molecule of claim 55.

57. (Currently Amended). A plasmid of claim 56 ~~55~~ further comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

58. (Previously presented). A composition comprising a plasmid of claim 57 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

59. (Previously presented). A composition comprising a plasmid of claim 56 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

60. (Previously presented). A recombinant vaccine or attenuated vaccine comprising composition comprising a nucleic acid molecule of claim 55.

61. (Previously presented). A methods immunizing an individual against an immunogen comprising administering a composition comprising nucleic acid molecules according to claim 55.

62. (Previously presented). The method of claim 61 wherein said immunization is prophylactic.

63. (Previously presented). The method of claim 61 wherein said immunization is therapeutic.

64. (Previously presented). The method of claim 61 wherein said immunogen is an allergen.

65. (Previously presented). The method of claim 61 wherein said immunogen is a pathogen antigen.

66. (Previously presented). The method of claim 61 wherein said immunogen is an antigen associated with an autoimmune disease.

67. (Previously presented). The method of claim 61 wherein said immunogen is an antigen associated with a hyperproliferative disease.

68. (New). The nucleic acid molecule of claim 55 wherein said coding sequence encodes a CD80 mutant that comprises amino acids 43-123 of CD80 as the functional CD80 V region, amino acids 243-263 of CD80 as the functional CD80 tm and amino acids 264-288 of CD80 as the functional CD80 ct region.

69. (New). The nucleic acid molecule of claim 68 wherein said coding sequence encodes a CD80 mutant that is free of a functional C region by the absence of part of the CD80 C region.

70. (New). A plasmid comprising a nucleic molecule of claim 68.

71. (New). A plasmid of claim 70 further comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

72. (New). A composition comprising a plasmid of claim 71 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

73. (New). A composition comprising a plasmid of claim 70 further comprising an immunogenic protein or a plasmid comprising a nucleic acid sequence comprising a coding sequence encoding an immunogen, said coding sequence operably linked to regulatory elements.

74. (New). A recombinant vaccine or attenuated vaccine comprising composition comprising a nucleic acid molecule of claim 68.

75. (New). A methods immunizing an individual against an immunogen comprising administering a composition comprising nucleic acid molecules according to claim 68.

76. (New). The method of claim 75 wherein said immunization is prophylactic.

77. (New). The method of claim 75 wherein said immunization is therapeutic.

78. (New). The method of claim 75 wherein said immunogen is an allergen.

79. (New). The method of claim 75 wherein said immunogen is a pathogen antigen.

**Docket No.: UPAP0013-100 (L2039)**  
**PATENT**

**Appl. Number: 09/980,762**  
**Filed: September 3,2002**

80. (New). The method of claim 75 wherein said immunogen is an antigen associated with an autoimmune disease.

81. (New). The method of claim 75 wherein said immunogen is an antigen associated with a hyperproliferative disease.